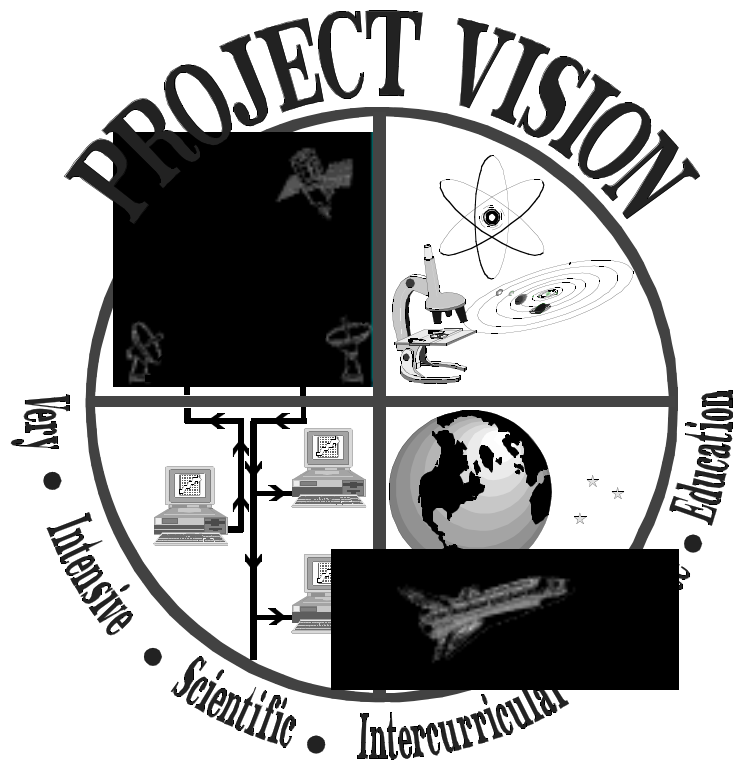


Project VISION

(Very Intensive Scientific Intercurricular On-Site Education)

Using Technology to Enhance the Science and Math Curriculums in the Middle Schools





A Partnership Among:

- ✓ **NASA/Kennedy Space Center**
- ✓ **Florida International University**
- ✓ ***Universidad del Turabo***
- ✓ **Miami-Dade County Public Schools**
- ✓ **Caguas/Gurabo Public Schools.**



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Program Mission

To institutionalize change among the science and mathematics teachers at the participating public middle schools. A further aspect of this mission is to enhance the science and math education of the public middle school students during this process.



Program Highlights

- ➡ **The project will not generate any new educational materials to fulfill its mission, but rather, will use the vast quantities of high quality learning modules available at NASA and other scientific depositories.**
- ➡ **The project will identify, adopt, adapt, test, and improve learning modules that best meet the needs and capabilities of the target schools, and then integrate these modules into the school curriculum.**
- ➡ **The project will specifically focus its activities on middle schools that serve socially and economically disadvantaged students.**
- ➡ **The project will invite members of the private and public sectors to serve as mentors and role models.**



Goals and Objectives

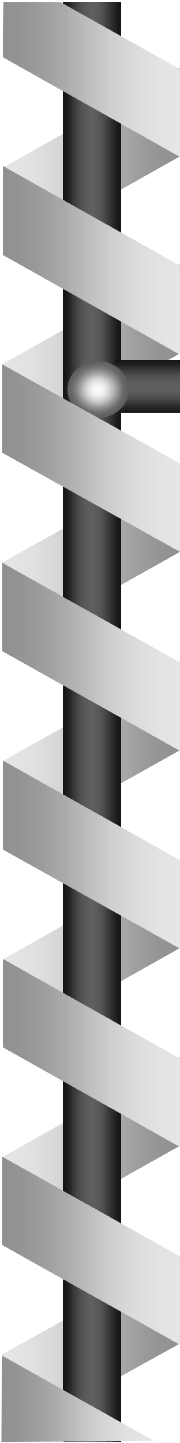
- ❶ Empower the public school teachers through training and technology.
- ❷ Enhance the public middle school science and mathematics curriculum.
- ❸ Develop a model of collaboration.
- ❹ Increase the average student scores in science and math subjects, as well as in the standardized tests.



Goals and Objectives

(Cont'd.)

- ⑥ Establish greater student participation in existing academic competitions and science/math/engineering fairs
- ⑥ Increased parental/guardian involvement in the educational process of their children
- ⑦ Expose the middle school students to examples of industry mentors and role models



Educational Enhancement

Two important factors why we need to make enhancements to our Public School Systems:

- ➡ **Shortage of engineers and scientists**
- ➡ **The U.S. has one of the lowest average student math and science scores of any industrialized nation**

Crisis in our Nation's Public Schools

Urban school skills gap

Percent of students in these types of schools, according to a federal report this year, achieving "basic" skill levels in these subjects:

	Poverty		Urban		Suburban	
	urban					
Reading	23%		43%		63%	
Math	33%		42%		66%	
Science	31%		38%		65%	

A school district in which 50% or more of the students qualify for free or reduced price school lunches.

Source: HUD State of the Cities report, National Assessment of Education Progress



Responding to the Need

What is needed to remedy the situation:

To work together with Math and Science teachers to enhance their learning and teaching skills. Also, the public school administrators must understand the problem and must, therefore, provide the necessary atmosphere to empower the teachers, and to help them perceive their task as very important.



Responding to the Need

(Cont'd)

What will be the Science and Math teachers' task:

**Provide the students with learning modules/
hands-on activities incorporating the
principles of science and mathematics**

Where are these learning modules to be found:

**Within NASA, and other data repositories that are
accessed through the Internet, as well as within
other sources (books, manuals, etc.)**



Responding to the Need

(Cont'd.)

What is the role of Project VISION:

- **Develop a list of learning modules that are not copyright protected and that meet the state's current curriculum standards;**
- **Work with the science and math teachers to access the Internet to identify, adopt, adapt, test and integrate learning modules into their classes;**
- **Assist them in presenting learning modules, including hands-on activities, in their classes.**



Institutionalized Change

- ✓ **The participating science and math teachers will, thereafter, be able to search the Internet on their own to find learning modules to incorporate within their curriculum.**
- ✓ **The participating schools/administrations will expect their newly trained science and math teachers to use learning modules to motivate their students, as well as to increase the students' knowledge of the principles of science and mathematics.**



Learning Module Development Cycle

- ① Form Clusters consisting of university faculty members, and graduate and undergraduate university students.**
- ② Identify potential learning modules for use in training.**
- ③ Adopt these learning modules for the program.**
- ④ Adapt the learning modules, if needed, to best fit the needs and capabilities of the student, as well as the curriculum.**



Learning Module Development Cycle

(Cont'd)

- ⑤ Pilot Test the potential learning modules in a real classroom setting.**
- ⑥ Improve these learning modules after the testing phase, if needed.**
- ⑦ Integrate the learning modules into the middle school curriculum based on state standards.**



Eight Step Training Methodology

Step ① - Consultation and Coordination

Step ② - Learning Module 1 - Class Preparation

Step ③ - Learning Module 1 - Presentation

Step ④ - Learning Module 2- Class Preparation

Step ⑤ - Learning Module 2 - Presentation

Step ⑥ - Learning Module 3 - Class Preparation

Step ⑦ - Learning Module 3 - Presentation

Step ⑧ - Evaluation and Feedback



Advantages of This Methodology

- **On-Site Training**
- **No Substitute Teachers Required**
- **No Teacher Stipends Required**
- **No Disruptions of the Daily Class Schedules**
- **Students Benefit Directly from Their Participation in Teacher's Training Sessions**



Preliminary Results

- **Homestead Middle School off Florida's Education Commissioner's "Hit List"**
- **7% increase in HMS's average science and math scores on standardized tests**
- **30 teachers trained in 1st year**
- **4 New Schools have purchased this training service so far this year**
- **Project VISION website created - located at <http://www.eng.fiu.edu/vision/>**



Learning Modules By Subject Area

Number of Learning Modules Processed:

187

Number of Science Learning Modules:

143

Number of Math Learning Modules:

98

"Pictures..."



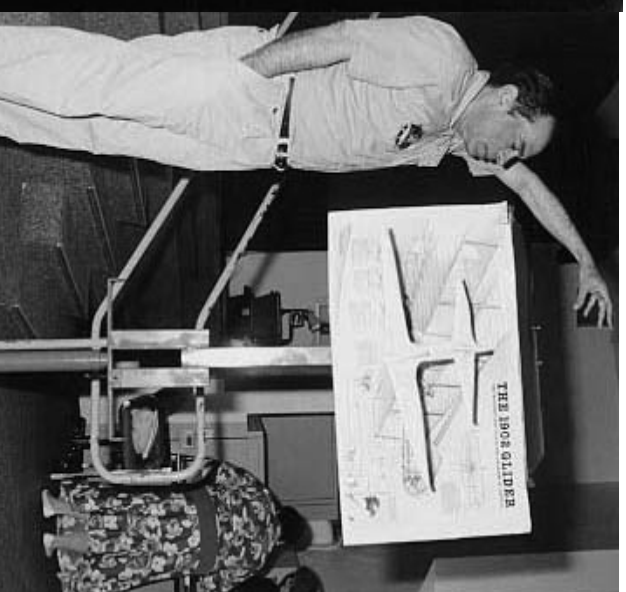
"...Speak..."



"...Louder..."



"...Than..."



"Words"

